





Molecular Mass (g mol <sup>-1</sup> )	406.26
IUPAC Name	3-chloro-4-[(2 <i>RS</i> ,4 <i>RS</i> ;2 <i>RS</i> ,4 <i>SR</i> )-4-methyl-2-(1 <i>H</i> -1,2,4-triazol-1-ylmethyl)-1,3-dioxolan-2-yl]phenyl 4-chlorophenyl ether
CAS Name	1-[2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-ylmethyl]-1 <i>H</i> -1,2,4-triazole
Other status information	-
Herbicide Resistance (HRAC) Classification	Not applicable
Insecticide Resistance (IRAC) Classification	Not applicable
Fungicide Resistance (FRAC) Classification	3
Physical State	White crystals



## Formulations:

Property 	Value
Example manufacturers of products using this active	<ul style="list-style-type: none"> <li>• Nufarm</li> <li>• Syngenta</li> </ul>
Example products using this active	<ul style="list-style-type: none"> <li>• Amistar Top</li> <li>• Plover</li> <li>• Spyrale</li> <li>• Difcor 250 EC</li> </ul>
Associated substances	<ul style="list-style-type: none"> <li>• <a href="#">azoxystrobin</a></li> <li>• <a href="#">fenpropidin</a></li> </ul>
UK LERAP status	None
Formulation and application details	Often supplied as an emulsifiable concentrate which is mixed with water and applied as a spray or as a flowable concentrate for seed treatments.



## ENVIRONMENTAL FATE

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Solubility - In water at 20°C (mg l <sup>-1</sup> )	15.0	A4	Low
Solubility - In organic solvents at 20°C (mg l <sup>-1</sup> )	330000	L3 - Ethanol	-
	610000	L4 - Acetone	-

		500000	A3 - Toluene	-
		3400	L3 - n-Hexane	-
Melting Point (°C)		82.5	A5	-
Boiling Point (°C)		101	A5	-
Degradation point (°C)		337	A5	-
Flashpoint (°C)		285	L3	-
Octanol-water partition coefficient at pH 7, 20°C	P:	2.29 X 10 <sup>04</sup>	Calculated	-
	Log P:	4.36	A5	High
Bulk density (g ml <sup>-1</sup> )/Specific gravity		1.37	B5	-
Dissociation constant (pKa) at 25°C		1.07	A5	-
		Note: Strong acid		
Vapour pressure at 25°C (mPa)		3.33 X 10 <sup>-05</sup>	A5	Intermediate state
Henry's law constant at 25°C (Pa m <sup>3</sup> mol <sup>-1</sup> )		9.0 X 10 <sup>-07</sup>	A5	Non-volatile
Henry's law constant at 20°C (dimensionless)		7.31 X 10 <sup>-10</sup>	K3	Non-volatile
Soil degradation (days) (aerobic)	DT50 (typical):	149	A5	Persistent
	DT50 (lab at 20°C):	149	A5	Persistent
	DT50 (field):	85	A5	Moderately persistent
	DT90 (lab at 20°C):	409	A5	-
	DT90 (field):	277	A5	-
	Note:	EU dossier lab studies DT50 range 53-456, DT90 range 175-1000 days, n=10; field studies DT50 range 20-265 days, DT90 range 68-879 days; Other sources: DT50 49 days (DW4)		
Aqueous photolysis DT50 (days) at pH 7	Value:	Stable	A5	Stable
	Note:	-		
Aqueous hydrolysis DT50 (days) at 20°C and pH 7	Value:	Stable	A5	Very persistent
	Note:	Stable pH 5 to pH 9		
Water-Sediment DT50 (days)		1053	B5	Stable
Water phase only DT50 (days)		3	K4	Moderately fast
GUS leaching potential index		0.99	Calculated	Low leachability
				
SCI-GROW groundwater index	Value:	2.04 X 10 <sup>-02</sup>	Calculated	-

( $\mu\text{g l}^{-1}$ ) for a 1 kg $\text{ha}^{-1}$ or 1 l $\text{ha}^{-1}$ application rate 	Note:	-		
Potential for particle bound transport index 		-	Calculated	High
Koc - Organic-carbon sorption constant ( $\text{ml g}^{-1}$ )		3495	A5	Slightly mobile
		pH sensitivity: None		
		Note: EU dossier Kfoc range 400-7730 mL/g		
Freundlich isotherm	Kf:	41.0	A5	-
	$1/n$ :	0.87		-
	Note	EU dossier Kf range 2.1-97.8, $1/n$ range 0.74-0.94, $n=8$		
Maximum UV-vis absorption L $\text{mol}^{-1} \text{cm}^{-1}$	[Acid: 215nm = 29306, 235nm = 17556, 275nm = 1743], [Neutral: 215nm = 28658, 235nm = 17392, 275nm = 1680], [Alkaline: 220nm = 21210, 235nm = 17176, 275nm = 1542]		A5	-




### Key metabolites:

Metabolite	Formation Medium	Estimated Maximum Occurrence Fraction	91/414 Relevancy 
1-[2-[2-chloro-4-(4-chloro- phenoxy)-phenyl]-2-1H-[1,2,4]triazol- yl]-ethanol (Ref: CGA 205375)	Soil	0.097	Minor fraction, Relevant
1,2,4-triazole (Ref: CGA 71019) 	Soil	0.320	Major fraction, Relevancy unknown

### Other known metabolites:

Metabolite name and reference	Aliases	Formation Medium / Rate	Estimated Maximum Occurrence Fraction
Phenobarbitone	-	Mouse (liver)	-
2-amino-3-[1,2,4] triazol- 1-yl-propionic acid (Ref: CGA 131013)	triazole alanine; (TA)	Animal; Plant	-
[1,2,4]triazol-1-yl-acetic acid (Ref: CGA 142586)	triazole acetic acid; (TAA)	Animal	-
2-chloro-4-(4-chloro- phenoxy)-benzoic acid (Ref: CGA 189138)	difenoconazole-benzoic acid	Plant	-
[1,2,4]triazol-1-yl-lactic acid (Ref: CGA 205369)	Triazole lactic acid; (TLA)	Animal	-
1-[2-chloro-4-(4-chloro- phenoxy)-phenyl]-2-[1,2,4]triazol- 1-yl-ethanone (Ref: CGA 205374)	difenoconazole-ketone Note: Mice acute oral LD50 >5000 mg $\text{kg}^{-1}$ bw,	Plant	-




## ECOTOXICOLOGY

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Bio-concentration factor	BCF: 320	A5	Threshold for concern
	CT50 (days):		-
Bioaccumulation potential	-	Calculated	Moderate
Mammals - Acute oral LD50 (mg kg <sup>-1</sup> )	1453	A5 Rat	Moderate
Mammals - Short term dietary NOEL (mg kg <sup>-1</sup> ):	20	B5 Rat	High
	(ppm diet):		-
Birds - Acute LD50 (mg kg <sup>-1</sup> )	> 2150	A5 <i>Anas platyrhynchos</i>	Low
Birds - Short term dietary (LC50/LD50)	> 5000 ppm	A5 <i>Anas platyrhynchos</i>	-
Fish - Acute 96 hour LC50 (mg l <sup>-1</sup> )	1.1	A5 <i>Oncorhynchus mykiss</i>	Moderate
Fish - Chronic 21 day NOEC (mg l <sup>-1</sup> )	0.023	A5 <i>Oncorhynchus mykiss</i>	-
Aquatic invertebrates - Acute 48 hour EC50 (mg l <sup>-1</sup> )	0.77	A5 <i>Daphnia magna</i>	Moderate
Aquatic invertebrates - Chronic 21 day NOEC (mg l <sup>-1</sup> )	0.0056	A5 <i>Daphnia magna</i>	-
Aquatic crustaceans - Acute 96 hour LC50 (mg l <sup>-1</sup> )	0.15	A5 <i>Americamysis bahia</i>	Moderate
Sediment dwelling organisms - Acute 96 hour LC50 (mg l <sup>-1</sup> )	-	-	-
Sediment dwelling organisms - Chronic 28 day NOEC, static, water (mg l <sup>-1</sup> )	0.015	A5 <i>Chironomus riparius</i>	Moderate
Sediment dwelling organisms - Chronic 28 day NOEC, sediment (mg kg <sup>-1</sup> )	10.0	A5 <i>Chironomus riparius</i>	Moderate
Aquatic plants - Acute 7 day EC50, biomass (mg l <sup>-1</sup> )	-	-	-
Algae - Acute 72 hour EC50, growth (mg l <sup>-1</sup> )	1.2	A5 <i>Scenedesmus subspicatus</i>	Moderate
Algae - Chronic 96 hour NOEC, growth (mg l <sup>-1</sup> )	0.87	Q2 Unknown species	Moderate
Honeybees - Acute 48 hour LD50 (µg bee <sup>-1</sup> )	> 100	A5 Contact	Moderate
Earthworms - Acute 14 day LC50 (mg kg <sup>-1</sup> )	> 610	A5	Moderate

Earthworms - Chronic 14 day NOEC, reproduction (mg kg <sup>-1</sup> )	-	-	-	-
Other soil macro-organisms - e.g. Collembola	LR50 / EC50 / NOEC / % Effect	-	-	-
Other arthropod (1)	LR50 g ha <sup>-1</sup> :	178	48 hour A5 Aphidius rhopalosiphi, adult	Moderately harmful at 1 kg ha <sup>-1</sup>
	% Effect:	-	-	-
Other arthropod (2)	LR50 g ha <sup>-1</sup> :	112	7 day A5 <i>Typhlodromus pyri</i>	Moderately harmful at 1 kg ha <sup>-1</sup>
	% Effect:	-	-	-
Soil micro-organisms		Nitrogen mineralisation: Unclear results Carbon mineralisation: No significant effect	A5 [Dose: 16.7 mg kg <sup>-1</sup> , 28 days]	-
Mesocosm study data	NOEAEC mg l <sup>-1</sup> :	-	-	-
	NOEAEC mg l <sup>-1</sup> :	-	-	-

## HUMAN HEALTH AND PROTECTION

### General:

Property 	Value	Source/Quality Score/Other Information 	Interpretation 
Mammals - Acute oral LD50 (mg kg <sup>-1</sup> )	1453	A5 Rat	Moderate
Mammals - Dermal LD50 (mg kg <sup>-1</sup> body weight)	> 2010	A5 Rat	-
Mammals - Inhalation LC50 (mg l <sup>-1</sup> )	> 3.3	A5 Rat, 4hr (nose only)	-
ADI - Acceptable Daily Intake (mg kg <sup>-1</sup> bw day <sup>-1</sup> )	0.01	A5 Rat, SF=100	-
ARfD - Acute Reference Dose (mg kg <sup>-1</sup> bw day <sup>-1</sup> )	0.16	A5 Rat, SF=100	-
AOEL - Acceptable Operator Exposure Level - Systemic (mg kg <sup>-1</sup> bw day <sup>-1</sup> )	0.16	A5 Rat, SF=100	-
Dermal penetration studies (%)	2-4	A3	-
Dangerous Substances Directive 76/464	-	-	-
Exposure Limits	-	-	-

Exposure Routes	Public:	[No unacceptable risks to bystanders identified], [Acceptable safety margin in place for consumers]
	Occupational:	[No unacceptable risks to workers identified]
Examples of European MRLs (mg kg <sup>-1</sup> )	Value:	Cereal grains: 0.02; Root vegetables: 0.2; Pome fruit: 0.3
	Note:	[A5 EU dossier proposals] For the EU pesticides database <a href="#">click here</a>
Drinking Water MAC (µg l <sup>-1</sup> )	0.1	A5 -

### Health issues:

Carcinogen	Endocrine disrupter	Reproduction / development effects	Acetyl cholinesterase inhibitor	Neurotoxicant	Respiratory tract irritant	Skin irritant	Eye irritant
?	-	?	X	X	X	✓	✓
General human health issues		[Liver, heart , thyroid and kidney toxicant]					

- ✓ : Yes, known to cause a problem  
 X : No, known not to cause a problem  
 ? : Possibly, status not identified  
 - : No data

### Handling issues:

Property	Value	Source/Quality Score/Other Information	Interpretation
General	[Not explosive or oxidising], [IMDG Transport Code is usually 9]		
EC Risk Classification	[Xn - Harmful: R22], [N - Dangerous for the environment: R50, R53]		
EC Safety Classification	S46, S60, S61		
WHO Classification	III	-	Slightly hazardous
US EPA Classification (formulation)	III	-	Caution - Slightly toxic
UN Number	Usually 3082		
Waste disposal & packaging	[Usually Packaging Group III (minor danger)]		

### TRANSLATIONS

Language	Name
English	difenoconazole
French	difenoconazole
German	Difenoconazol
Danish	difenoconazol
Italian	difenoconazolo
Spanish	difenoconazol

Greek	-
Slovenian	difenokonazol
Polish	difenokonazol
Swedish	difenokonazol
Hungarian	difenoconazole
Dutch	difenoconazool

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